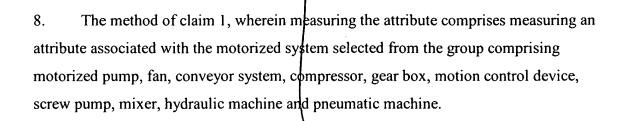
## **Claims**

What is claimed is:

- A method for controlling a motorized system comprising:
   measuring an attribute of the motorized system;
   diagnosing a health of the motorized system based on the measured attribute;
   providing a diagnostics signal based on the diagnosed health; and
   providing a control signal based on the diagnosed health
- 2. The method of claim 1, further comprising operating the motorized system according to the diagnostics signal.
- 3. The method of claim 1, further comprising modifying a setpoint of the motorized system.
- 4. The method of claim 1, wherein diagnosing the health comprises obtaining a frequency spectrum of the measured attribute and analyzing the frequency spectrum to detect adverse operating conditions.
- 5. The method of claim 5, wherein analyzing the frequency spectrum comprises analyzing the frequency spectrum to detect faults, component wear and component degradation.
- 6. The method of claim 5, wherein measuring the attribute comprises measuring an attribute associated with a motorized pump
- 7. The method of claim 1, wherein measuring the attribute comprises measuring an attribute associated with a fan.



- 9. The method of claim 1, wherein measuring the attribute comprises measuring a vibration of the motorized system.
- 10. The method of claim 1, wherein measuring the attribute comprises measuring a speed of the motorized system.
- 11. The method of claim 1, wherein measuring the attribute comprises measuring a temperature of the motorized system.
- 12. The method of claim 1, wherein diagnosing the health comprises analyzing an amplitude of a first spectral component of a frequency spectrum at a first frequency.
- 13. The method of claim 1, wherein providing the control signal comprises providing the control signal to increase cavitation to reduce damage to the motorized system.
- 14. The method of claim 1, wherein providing the control signal comprises providing the control signal to reduce cavitation to extend an operating lifetime of the motorized system.
- 15. The method of claim 1, wherein providing the control signal comprises generating the control signal and transmitting the control signal via a wireless network.
- 16. The method of claim 1, wherein providing the diagnostic signal comprises generating the diagnostic signal and transmitting the diagnostic signal via a wireless

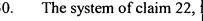




- 17. The method of claim 1 being implemented on a system connected to the motorized system via a wireless network.
- 18. The method of claim 1, wherein measuring the attribute comprises receiving measurements from at least one sensor.
- 19. A control system for controlling a motorized system comprising: means form measuring an attribute of the motorized system; means for diagnosing a health of the motorized system; means for providing a control signal; and means for providing a diagnostic signal.
- 20. The control system of claim 19, further comprising:
  means for modifying operation of the motorized system based on the diagnostic signal.
- 21. The control system of claim 19, further comprising:
  means for modifying operation of the motorized system based on the control signal.
- 22. A system comprising:a motorized system;
  - a communications link coupled to the motorized system; and
  - a control system coupled to the communications link comprising:
- a controller coupled to the communications link adapted to operate the motorized system in a controlled fashion; and
  - a diagnostics system coupled to the communications link adapted to

diagnose the health of the motorized system according to at least one measured attribute associated with the motorized system.

- The system of claim 22, wherein the at least one measured attribute comprises at 23. least one of vibration, pressure, current, speed, and temperature.
- The system of claim 22, wherein the motorized system comprises components, 24. devices, subsystems and process controls.
- 25. The system of claim 24, wherein the components comprise bearings, the devices comprise a motor, pump and fan, the subsystems comprise a motor-drive-pump and process controls comprise a pump fluid control.
- 26. The system of claim 22, wherein the motorized system comprises a motor and a load, and wherein the load comprises at least one of a valve, a pump, a conveyor roller, a fan, a compressor, and a gearbox.
- 27. The system of claim 24, wherein the diagnostics system provides a diagnostics signal, and wherein the controller provides a control signal
- 28. The system of claim 27, wherein the diagnostics signal represents health of the motorized system and the control signal represents control information for the motorized system.
- The system of claim 24, wherein the controller provides a control signal, wherein 29. the control signal contains control information for controlling at least one of the components, the devices, the subsystems and the process controls.
- The system of claim 22, further comprising at least one sensor coupled to the 30.



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motorized system and the communications link for measuring the at least one measured attribute.

- 31. The system of claim 22, wherein the communications link is a wired connection.
- 32. The system of claim 22, wherein the communications link is a wireless connection.
- 33. The system of claim 22, wherein the communications link is a wireless radio frequency system.
- 34. The system of claim 22, wherein the communications link is a wireless network.
- 35. The system of claim 22, wherein the control system is implemented on a computer system.
- 36. A system to facilitate controlling a motorized system, comprising:
  at least one sensor that senses at least one attribute of the motorized system;
  a diagnostics system that diagnosis a state of the motorized system based at least
  in part on the at least one sensed attribute;

a prognostic system that makes a prognosis of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed state; and

- a controller that controls the motorized system based at least in part on the diagnosed state.
- 37. The system of claim 36, the controller controlling the motorized system based at least in part on the prognosis.
- 38. The system of claim 37, the controller automatically adjusting operation of the

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motorized system based at least in part on prognosed future states of the motorized system.

- 39. The system of claim 36, the progrostic system comprising a non-linear training system.
- 40. The system of claim 36, the prognostic system inferring future operating states of the motorized system.
- 41. The system of claim 36, the controller automatically adjusting an operating state of the motorized system based at least in part on the prognosis.
- 42. The system of claim 36, the controller scheduling preventive maintenance for the motorized system based at least in part on the prognosis.